What is claimed is:

1. A system for processing an input signal, the system comprising:

- a signal processing subsystem receiving and processing said input signal and producing a system output signal, and

- a predistortion subsystem receiving at least two internal input signals and producing at least two predistorted signals by applying a deliberate predistortion to said at least two internal input signals;

wherein

- said predistortion subsystem distorts said internal input signals to compensate for distortions in said system output signal;

- said signal processing subsystem decomposes said input signal into separate components to produce said at least two internal input signals, each of said separate components being processed separately; and

- said signal processing subsystem combines said predistorted signals after processing to produce said system output signal.

2. A system according to claim 1 wherein said signal processing subsystem comprises:

- a signal decomposer for decomposing said predistorted signal into at least two internal input signals;

- at least two signal component processor blocks, each signal processor block receiving an output of said predistortion subsystem and each signal processor block separately processes said output received from said predistortion subsystem; and

- a combiner receiving a processed output from each of said at least two signal component processor blocks, said combiner producing said system output signal from said processed outputs of said at least two signal component processor blocks.

3. A system according to claim 2 wherein at least one of said at least two signal component

processor blocks includes an amplifier.

4. A system according to claim 3 wherein said amplifier is a non-linear amplifier.

5. A system according to claim 1 wherein said system is part of a signal transmission system.

6. A system according to claim 1 wherein at least some of said distortions are due to said combiner.

7. A system according to claim 3 wherein said amplifier is a switch mode amplifier.

8. A system according to claim 3 wherein said amplifier has a low output impedance.

9. A system according to claim 1 wherein said deliberate predistortion adjusts a phase of said system output signal by adjusting at least one of said at least two internal input signals.

10. A system according to claim 1 wherein said deliberate predistortion adjusts a magnitude of said system output signal by adjusting at least one of said at least two internal input signals.

11. A system according to claim 1 wherein said deliberate predistortion is based on at least one entry in a lookup table.

12. A method of processing an input signal to produce a system output signal, the method comprising:

a) receiving said input signal

b) decomposing said input signal into at least two component signals

c) applying a deliberate predistortion to each of said at least two component signals to produce predistorted signals

d) combining said at predistorted signals to produce said system output signal.

13. A method according to claim 12 wherein said system output signal is an RF modulated version of said input signal.

14. A method according to claim 12 further including a processing step of separately processing each of said predistorted signals prior to step d).

15. A method according to claim 14 wherein said processing step includes amplifying at least one of said predistorted signals.

16. A method according to claim 14 wherein said processing step includes phase modulating at least one of said predistorted signals.

17. A method according to claim 12 wherein step c) further includes the step of accessing an entry in a lookup table, said deliberate predistortion being based on said entry.

18. A method according to claim 17 wherein said deliberate predistortion is based on an interpolation of entries in said table.

19. A system according to claim 11 wherein said deliberate predistortion is based on an interpolation of entries in said table.

20. A system according to claim 1 wherein at least one of said at least two internal signals represents an angle.

21. A method according to claim 12 wherein at least one of said at least two internal component signals represents an angle.

22. A method according to claim 12 wherein said deliberate predistortion adjusts a phase of said system output signal by adjusting at least one of said at least two component signals.

23. A method according to claim 12 wherein said deliberate predistortion adjusts a magnitude of said system output signal by adjusting at least one of said at least two component signals.

24. A system according to claim 1 wherein said predistortion subsystem processes said at least two internal signals based on how said signal processing subsystem decomposes said input signal.

25. A system according to claim 1 wherein said signal processing subsystem decomposes said input signal using either a left triangle decomposition or a right triangle decomposition.

26. A system according to claim 25 wherein said deliberate predistortion applied to said at least two internal input signals depend upon a type of decomposition used by said signal processing subsystem.

27. A method according to claim 12 wherein said deliberate predistortion is dependent upon a type of decomposition used in step b).

28. A method according to claim 12 wherein said input signal is decomposed using either a left triangle decomposition or a right triangle decomposition.

29. A method according to claim 28 wherein said deliberate predistortion is dependent upon a type of decomposition used in step b).

30. A system according to claim 1 wherein said predistortion subsystem separately distorts said internal input signals.

32. A system for processing an input signal, the system comprising:

- a combined predistortion and decomposition subsystem, said combined subsystem receiving said input signal and producing at least two predistorted signals derived from said input signal,

- a signal processing subsystem for receiving said at least two predistorted signals from said combined subsystem, processing said at least two predistorted signals, and producing a system output signal;

wherein

- said at least two predistorted signals are predistorted components of said input signal, a predistortion of said components being to compensate for distortions in said system output signal;

- said combined subsystem decomposes said input signal into said components to produce said at least two predistorted signals, each of said separate components being processed separately; and

- said signal processing subsystem combines said predistorted signals after processing to produce said system output signal.

33. A system according to claim 32 wherein said combined subsystem utilizes different processing for said input signal based on a decomposition method used.

34. A system according to claim 33 wherein said combined subsystem contains multiple lookup tables for use in producing said predistorted components such that said decomposition method used determines which lookup tables are utilized.

35. A system according to claim 34 wherein said combined subsystem predistorts said input signal prior to decomposing a resulting predistorted signal to produce said at least two predistorted signals.

36. A system according to claim 34 wherein said combined subsystem decomposes said input

signal prior to predistorting resulting components to produce said at least two predistorted signals.

37. A system according to claim 34 wherein said decomposition method is selected from a group including left triangle decomposition and right triangle decomposition.